FUNGI FROM NANTUCKET SALT MARSHES AND BEACHES

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Marine fungi on intertidal and submerged wood, salt marsh plants, and algae have been collected from coastal areas of Massachusetts by Barghoorn and Linder (1944), Meyers (1957), and Webber (1966, 1970). Kohlmeyer (1971) added to the number of species reported and compiled an annotated list of the New England marine fungi. The above authors have not, however, reported on the fungi from the islands off the coast. During June 1977, we had the opportunity to spend a few days on Nantucket Island and were able to collect fungi from a number of different substrates from some salt marsh and beach habitats. The collecting sites and substrates sampled were as follows:

J. B. Jetties Beach, a sandy beach on the north side of the island; salinity 30 o/oo; water temperature 21°C; 25 June 1977; washed up and submerged dead *Zostera marina* L., RVG *109*[1]; wood on beach, RVG *110*.

P. R. Salt marsh behind Nantucket Public Works Dept. garage, north side of island off Polpis Rd.; salinity of adjacent tidal creek 20 o/oo; water temperature 21°C; 25 June 1977; dead standing *Spartina alterniflora* Loisel., RVG *111a; S. alterniflora* debris at the high tide mark, RVG *111b;* dead standing *Salicornia* sp., RVG *111c;* dead *Zostera marina* at the high tide mark, RVG *111d*.

S. Surfside, a sandy beach on the south side of the island; 25 June 1977; wood on the beach, RVG *112a;* dead *Zostera marina* on the beach, RVG *112b*.

Specimens (RVG *109–112*) are deposited as slides and/or dried material at the mycological collection of the University of North Carolina, Institute of Marine Sciences (IMS). Cultures of *Pleospora gaudefroyi* Patouillard and *Camarosporium roumeguerii* Saccardo have been deposited at the American Type Culture Collection, Rockville, Maryland.

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[1]Collection numbers preceded by RVG are housed in the author's personal herbarium.

ASCOMYCOTINA

Buergenerula spartinae Kohlm. et Gessner; dead standing *Spartina alterniflora;* P. R.; RVG *111a.* This is the first report of *B. spartinae* from Massachusetts. It is ubiquitous along the east coast of the United States on *S. alterniflora* (Gessner & Kohlmeyer, 1976).

Corollospora maritima Werdermann; *Zostera marina* and wood with attached sand grains; J. B.; RVG *109 & 110. Corollospora maritima* has been reported previously on wood and in foam from Massachusetts (Kohlmeyer, 1971).

Halosphaeria sp.; dead standing *Spartina alterniflora;* P. R.; RVG *111a.* This fungus is similar to *H. hamata* but the appendages are atypical.

Leptosphaeria albopunctata (Westend.) Sacc.; dead standing *Spartina alterniflora;* P. R.; RVG *111a. Leptosphaeria albopunctata* has not been reported previously from Massachusetts.

Leptosphaeria halima Johnson; leaves of dead standing *Spartina alterniflora;* P. R.; RVG *111a.* This is the first report of *L. halima* from New England. It has been reported previously from North Carolina and Florida (Johnson, 1956; Johnson & Sparrow, 1961).

Leptosphaeria obiones (Crouan et Crouan) Sacc.; *Spartina alterniflora:* debris at the high tide mark and dead standing plants; P. R.; RVG *111a.*

Phaeosphaeria typharum (Desmaz.) Holm; *Spartina alterniflora:* debris at the high tide mark and dead standing plants; dead standing *Salicornia* sp. P. R.; RVG *111a,b,&c.*

Pleospora gaudefroyi Patouillard; dead standing *Salicornia* sp.; P. R.; RVG *111c.* This collection represents the first report of *P. gaudefroyi* from North America. It has been reported previously from Europe and South America (Kohlmeyer, 1962; Kohlmeyer, unpublished; Kohlmeyer & Kohlmeyer, 1964–1969). Cultures derived from transferring a few ascospores to GYPSR/2 agar (glucose, lg; yeast extract, 0.lg; agar, 18g; penicillin G, 0.lg; streptomycin SO_4, 0.lg; 500 ml Rila Marine mix and 500 ml distilled water) produced ascocarps with mature ascospores in about four weeks.

Pleospora pelagica Johnson; dead standing *Spartina alterniflora;* P. R.; RVG *111a.* This represents the first account of *P. pelagica* from Massachusetts. It has been reported previously from Rhode Island (Gessner & Kohlmeyer, 1976).

Pleospora vagans var. **vagans** Niessl; dead standing *Spartina alterniflora;* P. R.; RVG *111a. Pleospora vagans* var. *vagans* has been reported previously on *S. alterniflora* from Rhode Island and New Jersey (Gessner & Kohlmeyer, 1976).

Pleospora cfr. **valesiaca** (Niessl) E. Müller; dead standing *Salicornia* sp.; P. R.; RVG *111c.* The fungus reported here has sheathed ascospores similar to *P. valesiaca* which has been found on *Salicornia* spp. in Argentina, New Jersey, and North Carolina (Kohlmeyer, unpublished).

BASIDIOMYCOTINA

Uromyces cfr. **acuminatus** Arth.; dead standing *Spartina alterniflora;* P. R.; RVG *111a.* Teliospores agreeing in shape and size with those of *U. acuminatus* were found on the leaves of *S. alterniflora.* Cummins (1971) has previously reported this fungus on salt marsh cordgrass from Massachusetts.

DEUTEROMYCOTINA

Alternaria sp.; dead standing *Salicornia* sp. and dead *Zostera marina* on beach. P. R.; S.; RVG *111c & 112b.*

Asteromyces cruciatus F. et Mme. Moreau ex Hennebert; dead *Zostera marina* on beach. S.; RVG *112b.* This sand-inhabiting fungus from temperate waters has been reported from foam in Massachusetts (Kohlmeyer, 1971).

Camarosporium roumeguerii Saccardo; dead standing *Salicornia* sp.; P. R.; RVG *111c.* Saccardo (1880) and Kohlmeyer (unpublished) have found this fungus on *Salicornia* spp. This is the first report of *C. roumeguerii* from the United States. It readily produced pycnidia in culture when isolated on GYPSR/2 agar.

Dendryphiella salina (Suth.) Pugh et Nicot; driftwood and dead *Zostera marina* on beach. S.; RVG *112a&b.* A collection of this fungus from a crustaceous alga on an intertidal branch was made previously in Massachusetts by Kohlmeyer (1971).

Phoma sp. and spermogonia; *Spartina alterniflora:* debris at the high tide mark and dead standing plants; dead standing *Salicornia* sp. P. R.; RVG *111a,b,&c.*

Septoria sp.; *Spartina alterniflora:* debris at the high tide mark and dead standing plants; P. R.; RVG *111a&b.*

Stagonospora sp. II; *Spartina alterniflora:* debris at the high tide mark and dead standing plants; P.R.; RVG *111a&b.* A common fungus on *S. alterniflora, Stagonospora* sp. II has been reported from numerous locations along the east coast of North and South America (Gessner & Kohlmeyer, 1976).

DISCUSSION

The fungi of Nantucket salt marshes and beaches, reported in this limited study, appear to be similar to those of mainland New England (Kohlmeyer, 1971; Gessner & Goos, 1973; Gessner, 1977). Studies by other workers on off shore islands (Cavaliere, 1968; Kohlmeyer, 1967, 1969; Kohlmeyer & Kohlmeyer, 1977; Schaumann, 1969) have reported species commonly found on the mainland. The geographical distribution of the marine fungi reported here, as for other islands in Atlantic temperate waters, appears to be influenced by water temperatures and the host plants. Host specific fungi such as *Buergenerula spartinae* and *Pleospora pelagica* have been reported from *Spartina alterniflora* along the east coast of the United States. *Camarosporium roumeguerii* has only been collected on members of the Chenopodiaceae. *Phaeosphaeria typharum* and *Pleospora vagans* var. *vagans* occur on a number of graminicolous hosts (Holm, 1957; Gessner & Kohlmeyer, 1976; Wehmeyer, 1961). Other fungi such as *Leptosphaeria albopunctata, L. halima, L. obiones,* and *Pleospora gaudefroyi* are commonly found on the remains of salt marsh plants but are occasionally reported from wood. The discovery of *P. gaudefroyi* and *C. roumeguerii* for the first time in North America and the United States, respectively, probably relates to the few studies of fungi on hosts in the Chenopodiaceae. *Asteromyces cruciatus* is a common fungus in temperate waters on plant material, on sandy shores, and in foam. Fungi such as *Corollospora maritima* and *Dendryphiella salina* appear to be ubiquitous on plant material from sandy beaches and

the intertidal zone. This study further supports the host-influenced distribution of many salt marsh fungi and the ubiquitous distribution of some plant debris-sand inhabiting species on beaches.

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LITERATURE CITED

BARGHOORN, E. S., & D. H. LINDER. 1944. Marine fungi: their taxonomy and biology. Farlowia **1:** 395–467.

CAVALIERE, A. R. 1968. Marine fungi of Iceland: a preliminary account of Ascomycetes. Mycologia **50:** 475–480.

CUMMINS, G. B. 1971. The rust fungi of cereals, grasses and bamboos. Springer-Verlag, New York. 570 pp.

GESSNER, R. V. 1977. Seasonal occurrence and distribution of fungi associated with *Spartina alterniflora* from a Rhode Island estuary. Mycologia **69:** 477–491.

———, & R. D. GOOS. 1973. Fungi from *Spartina alterniflora* in Rhode Island. Mycologia **65:** 1296–1301.

———, & J. KOHLMEYER. 1976. Geographical distribution and taxonomy of fungi from salt marsh *Spartina*. Canad. Jour. Bot. **54:** 2023–2037.

HOLM, L. 1957. Études taxonomiques sur les Pléosporacées. Symb. Bot. Upsal. **14:** 1–188.

JOHNSON, T. W., JR. 1956. Marine fungi. I. *Leptosphaeria* and *Pleospora*. Mycologia **48:** 495–505.

———, & F. K. SPARROW, JR. 1961. Fungi in oceans and estuaries. J. Cramer, Weinheim. 688 pp.

KOHLMEYER, J. 1962. Über *Pleospora gaudefroyi* Patouillard. Willdenowia **3:** 315–324.

———. 1967. Intertidal and phycophilous fungi from Tenerife (Canary Islands). Trans. Brit. Mycol. Soc. **50:** 137–147.

———. 1969. Marine fungi of Hawaii including the new genus *Helicascus*. Canad. Jour. Bot. **47:** 1469–1487.

———. 1971. Annotated check-list of New England marine fungi. Trans. Brit. Mycol. Soc. **57:** 473–492.

———, & E. KOHLMEYER. 1964–1969. Icones fungorum maris. Fasc. 1–9. J. Cramer, Weinheim/Lehre.

———, & ———. 1977. Bermuda marine fungi. Trans. Brit. Mycol. Soc. **68:** 207–219.

MEYERS, S. P. 1957. Taxonomy of marine Pyrenomycetes. Mycologia **49:** 475–528.

SACCARDO, P. A. 1880. Fungi gallici. Series II. Michelia **2:** 29–135.
SCHAUMANN, K. 1969. Über marine höhere Pilze von Holzsubstraten der Nordsee-Insel Helgoland. Ber. dt. bot. Ges. **82:** 307–327.
WEBBER, E. E. 1966. Fungi from a Massachusetts salt marsh. Trans Am. Microscop. Soc. **85:** 556–558.
_____. 1970. Marine Ascomycetes from New England. Bull. Torrey Bot. Club. **97:** 119–120.
WEHMEYER, L. E. 1961. A world monograph of the genus *Pleospora* and its segregates. Univ. Michigan Press, Ann Arbor. 451 pp.

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